

PATENT SPECIFICATION

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PROVISIONAL SPECIFICATION

Improvements in or relating to Cable Connexion Sockets or Glands for use with Portable Electric Machines such as are used in Mines and the like

We, CHARLES CROFTON AND COMPANY (ENGINEERS) LIMITED, a British Company, and HAROLD BUSTON CROFTON, a British Subject, both of Church Bank
5 Offices, Wallsend-on-Tyne, in the County of Northumberland, England, do hereby declare the nature of this invention to be as follows:—

This invention relates to cable connexion sockets or glands for use with portable electric machines such as are used in mines and the like.

The object of the invention is to provide an improved connexion between the earth wire and the electrical machine which will allow of varying sizes of earth wire to be used with the one size of cable socket or gland, at the same time will give a simple yet sound electrical earth connexion in which it will be practically impossible to pull out the earth wire and give simple means for readily ascertaining whether the earth wire is intact or not together with a connexion which is substantially watertight.

According to the invention the cable socket or gland in which the end of the cable is held has formed in its side a bore of substantially large diameter, the said bore being tapped to receive a threaded contact plug preferably with a central conical projection on its inner face while a contact washer between which and the said plug the end of the earth wire is adapted to be nipped is held at the inner end of the bore, the inner diameter of the said washer varying according to the size of the conductor of the earth wire to be used. The contact plug may have a saw-cut for engagement by a screw driver so that the plug may be flush with or below the level of the outer face of the cable socket.

According to one form the contact washer abuts against a shoulder formed at the inner end of the bore. Alternatively the bore may be tapped throughout and the contact washer threaded to engage therewith.

In use the stripped end of the earth wire is passed from the inside of the socket through the contact washer and its strands spread out radially, the length of the stripped portion of the earth wire being such that when the strands are spread out they will just clear the walls of the bore. The contact plug is then screwed tight against the earth conductor which is thus held firmly in position, and gives a sound electrical connexion.

It will be seen that by this simple device various sizes of earth wires may be dealt with merely by changing the contact washers according to the diameter of the earth wire to be used. Then as the contact plug is on the outside of the cable gland the operation of making connexion is very simple and at the same time a ready means is provided of inspecting the earth connexion. By making the diameter of the contact plug on the large side the danger of stripping of the thread is obviated while at the same time a firm hold is given on the earth conductor. Finally by coating the threads of the contact plug with red lead or the like a substantially watertight joint may be made between the plug and the wall of the bore.

Dated this 20th day of April, 1938.

For the Applicants:

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COMPLETE SPECIFICATION

Improvements in or relating to Cable Connexion Sockets or Glands for use with Portable Electric Machines such as are used in Mines and the like

We, CHARLES CROFTON AND COMPANY (ENGINEERS) LIMITED, a British Company, and HAROLD BUSTON CROFTON, a British Subject, both of Church Bank
[Price 4/6]

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Offices, Wallsend-on-Tyne, in the County of Northumberland, England, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to cable connexion sockets or glands for use with portable electric machines such as are used in mines and the like such sockets or glands being of the kind comprising screw threaded means for attaching the end of an earth wire thereto. Such a socket or gland is hereinafter referred to as "of the kind described".

The object of the invention is to provide an improved connexion between the earth wire and the electrical machine which will allow of varying sizes of earth wire to be used with the one size of cable socket or gland, at the same time will give a simple yet sound electrical earth connexion in which it will be practically impossible to pull out the earth wire and give simple means for readily ascertaining whether the earth wire is intact or not together with a connexion which is substantially watertight.

According to the invention the cable socket or gland in which the end of the cable is held comprises in its side a tapped bore which contains a contact washer through which the earth wire is adapted to be threaded, and a threaded contact plug between which and the said contact washer the end of the earth wire is adapted to be held, the inner diameter of the said washer varying according to the size of the conductor of the earth wire to be used. The contact plug may have a saw-cut for engagement by a screw driver so that the plug may be flush with or below the level of the outer face of the cable socket.

According to one form the contact washer abuts against a shoulder formed at the inner end of the bore. Alternatively the bore may be tapped throughout and the contact washer threaded to engage therewith.

The invention will now be described by way of example with reference to the accompanying drawings which show a cable gland with the end of a cable inserted, but only the earth wire projecting therefrom.

In the said drawings:

Fig. 1 is a longitudinal section taken on the line I—I of Fig. 2.

Fig. 2 is a plan of Fig. 1.

Referring more particularly to the drawings, 1 is the socket. A boss 1a is formed on the side of the socket and is bored and tapped for the greater portion

of its thickness, the remainder being bored to a smaller diameter to form a shoulder 1b on which rests a flanged collar or contact washer 2 whose internal diameter is greater or less according to the thickness of the earth wire to be used. A shallow contact plug 3 is adapted to screw into the threaded boss 1a, the under face of the said plug having a conical pip 3a formed thereon, while the thickness of the plug is such that when it is screwed home its upper face is about flush with the surface of the boss 1a. A saw-cut 3b serves for turning the plug 3.

In use the stripped end 4a of the earth wire 4 is passed from the inside of the socket 1 through the contact washer 2 and its strands spread out radially, the length of the stripped portion of the earth wire being such that when the strands are spread out they will just clear the walls of the bore. The contact plug 3 is then screwed tight against the earth conductor which is thus held firmly in position, and gives a sound electrical connexion.

It will be seen that by this simple device various sizes of earth wires may be dealt with merely by changing the contact washers according to the diameter of the earth wire to be used. Then as the contact plug is on the outside of the cable gland the operation of making connexion is very simple and at the same time a ready means is provided of inspecting the earth connexion. By making the diameter of the contact plug on the large side the danger of stripping of the thread is obviated while at the same time a firm hold is given on the earth conductor.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A cable connexion socket or gland of the kind described comprising in its side a tapped bore containing a contact washer through which the earth wire is adapted to be threaded, and a threaded contact plug between which and the said contact washer the end of the earth wire is adapted to be held; the inner diameter of the said washer varying according to the size of the conductor of the earth wire to be used.

2. A cable connexion socket according to claim 1 wherein the contact plug has a conical projection on its inner or under face.

3. A cable connexion socket according to either of claims 1 and 2 wherein the contact washer is adapted to abut against a shoulder formed at the inner end of the bore.

4. A cable connexion socket according to either of claims 1 and 2 wherein the bore is tapped throughout and the contact washer is threaded to engage with
5 the said bore.

5. A cable connexion socket or gland having its parts arranged, combined and adapted for use substantially as described with reference to and

as illustrated in the accompanying 10 drawings.

Dated this 4th day of August, 1938.

For the Applicants:

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Fig. 1.

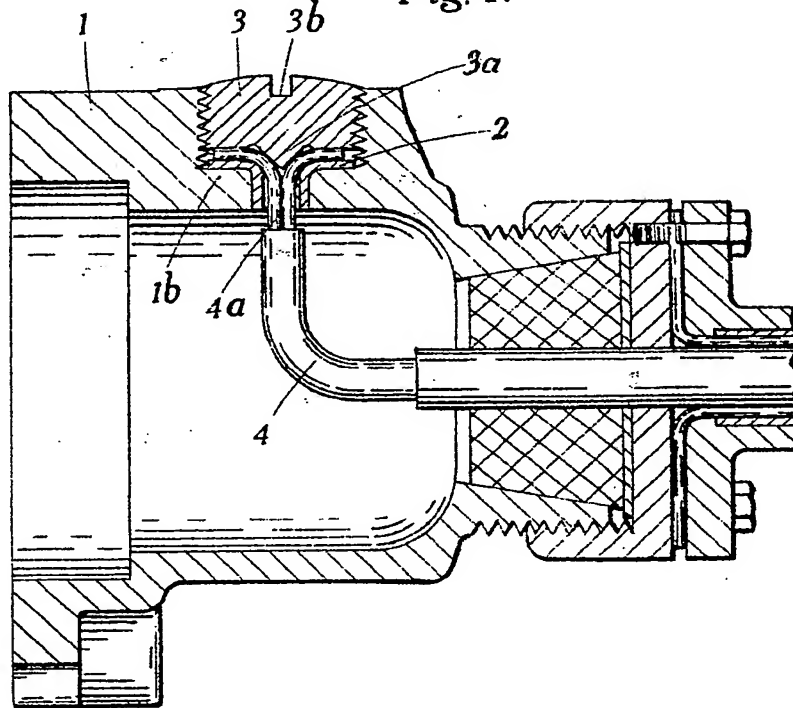
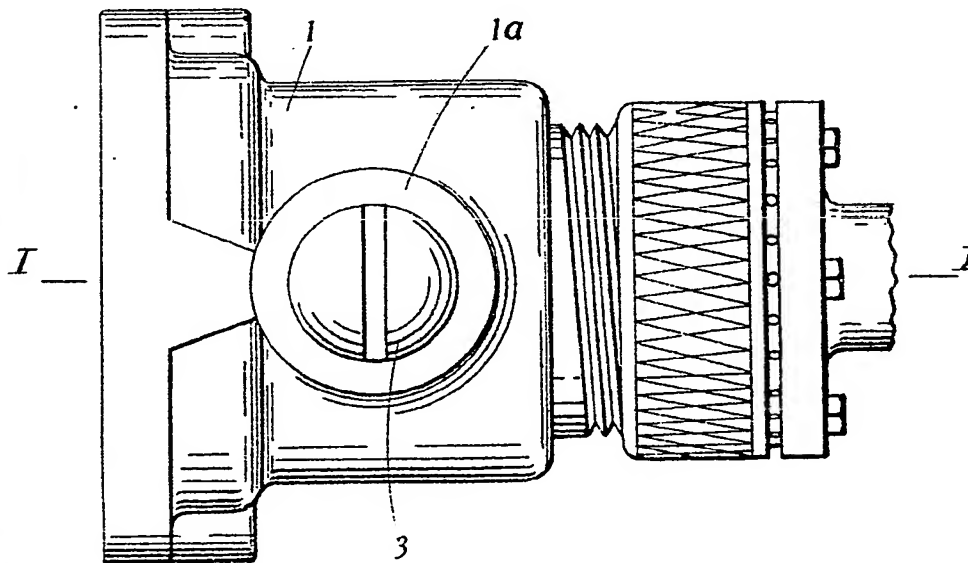


Fig. 2.



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